

REMARKS

This is intended as a full and complete response to the Final Office Action dated November 13, 2007, having a shortened statutory period for response set to expire on February 13, 2008. Applicants submit this response to place the application in condition for allowance or in better form for appeal. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-12, 14-30 and 32-42 are pending in the application. Claims 1-12, 14-30 and 32-42 remain pending following entry of this response.

Claim Rejections - 35 U.S.C. § 101

Claims 21-38 are rejected under 35 U.S.C. 101. As part of a prior response, Applicants limited the scope of claims 21-39 to be directed to "a computer readable storage medium." Nevertheless the Examiner suggests as follows:

Claims 21-38 is drawn to a computer readable storage medium, which the applicant has defined in the specification (page 8, paragraph 0031, lines 4-10) as part of "signal bearing media" to include (i) and (ii) computer storage media, and (ii) communications media to encompass an electronic transmission signal.

Final Office Action, p.2. However, the cited paragraph provides a list of different examples of "signal bearing media." Specifically, paragraph 31 provides:

Illustrative signal-bearing media include, but are not limited to: (i) information permanently stored on non-writable storage media (e.g., read-only memory devices within a computer such as CD-ROM disks readable by a CD-ROM drive); (ii) alterable information stored on writable storage media (e.g., floppy disks within a diskette drive or hard-disk drive); and (iii) information conveyed to a computer by a communications medium, such as through a computer or telephone network, including wireless communications.

Application, ¶ 31. As amended in the prior response, claims 21-38 are limited to the first entry in the list, i.e., to "information permanently stored on non-writable storage media (e.g., read-only memory devices within a computer such as CD-ROM disks readable by a CD-ROM drive)," a well-settled form of statutory subject matter. Applicants submit that the presence of other entries in this list is of no consequence,

and that clearly, claims 21-38 are limited to statutory subject matter under 35 U.S.C. § 101. Accordingly, Applicants respectfully request that this rejection be withdrawn.

Claim Rejections - 35 U.S.C. § 102

Claims 1, 3, 9, 21, 23, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by *Stone* (US 2003/0046615). Applicants respectfully traverse this rejection.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

In this case, *Stone* does not disclose "each and every element as set forth in the claim." For example, *Stone* does not disclose the method recited by claim 1 "for parallel processing of requests" that includes:

performing, by the secondary executing entity, the requests previously performed by the primary executing entity in a time-delayed and step-wise fashion while the primary executing entity continues to execute requests, whereby each executing entity maintains its own respective state information independent of, and temporally displaced from, the other executing entity.

Claim 21 recites a similar limitation. The Examiner argues that paragraphs 11 and 12 of *Stone* disclose claim 1. Set out in full these paragraphs provide:

The most popular technique for providing large-scale distributed programming network reliability depends on entity, or object instance redundancy. This technique is also often referred to as "replication" and provides some degree of protection against component failures in large or critical systems by providing alternate instances of the same object or group of objects in hopes that when a primary instance of the object or group of objects fails, one or more alternate instances can resume service where the primary left off.

Another common technique, called N-version programming, relies on three or more different versions (implementation) of the same service (or object) running concurrently. Their operation is controlled through some lock-step controlling mechanism such that each of the parallel implementations run logically through the same sequencing without one proceeding ahead of the other for instance. At opportune points in time, the outputs of each of the three or more instances is voted upon. The expectation is that all three instances would report the same results for whatever computational task they are providing, hence no discrepancies should be identified. When there is a failure in an instance, this technique relies upon the presumption that the three different implementations would not likely have the same error; hence, the majority output of the other two instances is taken as the valid output and propagated to the next objects in the chain of processing. This technique is often used in life-support, mission critical, aerospace, and aviation. It is obviously quite expensive to build these types of systems as, literally, the system is developed differently at least three times. This technique is also often called triple modular redundancy (TMR).

Stone, ¶¶ 11, 12. These paragraphs each describe a different approach to a problem of "approaches for solving load balancing issues of large-scale distributed programming networks." Stone, ¶ 10.

The first paragraph (¶ 11) provides a general description of how a "replication" technique may be used to provide a fault tolerant computing system. As described in ¶ 11, if one system component fails, a replicated copy may take over. Computing systems organized in this manner are generally referred to as having a "primary" and a "secondary" system.

The second paragraph (¶ 12) provides a general description of another approach to providing a fault tolerant computing system; specifically, a well-known technique of "N-version programming." Using this technique, a given computer program may be implemented three (or more) times by independent programming teams. The assumption being that although the functionality provided by each resulting program should be the same, the underlying implementation of each program will differ from one another. As each program implements the same functionality, each implementation should produce the same result for the same input data most of the time. In cases

where the output differs, it is likely the result of a defect in one of the implementations particularly where the other two produce identical results.

Nothing in either the general descriptions of redundant fail-over computing or "N-version programming" discloses anything like a "secondary entity" configured to perform "requests previously performed by the primary executing entity in a time-delayed and step-wise fashion while the primary executing entity continues to execute requests," as recited by claims 1 and 21. In fact, the material from paragraph 12, suggests exactly the opposite:

Their operation is controlled through some lock-step controlling mechanism such that each of the parallel implementations run logically through the same sequencing without one proceeding ahead of the other for instance.

Stone, ¶ 12. This lockstep operation is required for "N-version programming," as the output of each independent implementation needs to be periodically compared and "voted" upon. Thus, not only does *Stone* not disclose the limitations of claims 1 and 21, *Stone*, in fact, discloses something fundamentally incompatible with the limitations recited by these claims. Accordingly, for all the foregoing reasons, independent claims 1 and 21, as well as dependent claims 3, 9, 23, and 27 are believed to be allowable, and allowance of the claims is respectfully requested.

Claim Rejections - 35 U.S.C. § 103

Claims 2, 11, 13, 16, 19, 22, 29, 31, 34, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Stone* (US 2003/0046615) in view of *Chamdani et al.* (US 6,985,975). Claims 4-8, 10, 24-26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Stone* (US 2003/0046615) in view of *Aguilera et al.* (US 6,687,847). Claims 12, 14-15, 17-18, 20, 30, 32-33, 35-36, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Stone* (US 2003/0046615) and *Chamdani et al.* (US 6,985,975) as applied to claims 11, 16, 29, and 34 above, and further in view of *Aguilera et al.* (US 6,687,847). Claims 39 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Stone* (US 2003/0046615) in view of *Chamdani et al.* (US 6,985,975) and *Aguilera et al.* (US 6,687,847). Claims 40-41 are rejected under 35

U.S.C. 103(a) as being unpatentable over *Stone* (US 2003/0046615), *Chamdani et al.* (US 6,985,975), and *Aguilera et al.* (US 6,687,847) as applied to claim 39 above, and further in view of *DeKoning* (US 6,148,368). Respectfully, Applicants traverse these rejections.

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See MPEP § 2142. To establish a *prima facie* case of obviousness three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP § 2143. The present rejection fails to establish at least the third criteria.

Independent claims 11 and 29 each recite a step of:

performing, by a secondary executing entity, at least a portion of the user requests on the queue step-wise with the primary executing entity and N-requests behind the primary executing entity; wherein each of the executing entities maintain their own respective state information

Claim 39 recites a similar limitation. Similarly, independent claims 16 and 34 each recite a step of:

performing, by a plurality of secondary executing entities, at least a portion of the user requests on the queue step-wise with the primary executing entity and in a manner transparent to the user; wherein each of the secondary executing entities is displaced from the primary executing entity and from one another by a number of user requests; and wherein each of the executing entities maintain their own respective state information.

In rejecting these claims, the Examiner suggests that *Stone*, ¶¶ 11, 12 discloses the quoted limitations. However, as demonstrated above, *Stone* does not disclose a method where “user requests on the queue [are performed by a secondary server] step-wise with the primary executing entity and N-requests behind the primary executing entity.” In particular, *Stone* does not disclose a method where requests are executed by the secondary executing entity “N-requests behind the primary executing entity,” as recited by claims 11, 16, 29, 34, and 39. In fact, the description of “N-version

programming," is fundamentally incompatible with the limitations recited by these claims. Accordingly, for all the foregoing reasons, independent claims 11, 16, 29, 34, and 39, as well as dependent claims 2, 4-8 , 10, 12, 13-15 17-20 22, 24-26, 28, 30-33, 35-38, and 42 are believed to be allowable, allowance of these claims is respectfully requested.

Therefore, the claims are believed to be allowable, and allowance of these claims is respectfully requested.

Conclusion

Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

If the Examiner believes any issues remain that prevent this application from going to issue, the Examiner is strongly encouraged to contact Gero McClellan, attorney of record, at (336) 643-3065, to discuss strategies for moving prosecution forward toward allowance.

Respectfully submitted, and
S-signed pursuant to 37 CFR 1.4,

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